June 20, 1994

MEMORANDUM FOR THE RECORD

SUBJECT: INFORMATION PROCESSING DIVISION (IPD) CONFIGURATION CONTROL BOARD (CCB) MEETING TO CONDUCT THE LANDSAT PROCESSING SYSTEM PROJECT APPROVAL REVIEW

The IPD CCB convened at 9:00 AM, June 16, 1994, in Building 23, Room S-402 to conduct the subject review.

Enclosure 1 reflects pertinent aspects of the discussion that transpired. No action items were assigned.

Members of the CCB were:
D. Giblin/Code 560, Chairman
J. Jackson/Code 562
E. Beard/Code 563
C. Wilkinson/Code 564
W. Kelly/Code 563, IPD Systems Engineer

Other Attendees were:

D. DeVito/Code 506
J. Smith/Code 506
C. Taveras/Code 531
W. Stallings/Code 560
G. Fleming/Code 562
J. Thomson/Code 562
G. Wade/Code 562
J. Henegar/Code 563
T. Rykowski/Code 563
K. Michael/Code 564
E. Valencia/Code 564
V. Buczkowski/ATSC
P. Province/ATSC
T. Aslam/CSC
B. Bacon/CSC
T. Sawanobori/CSC
J. Unekis/USGS

Prepared by:

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Philip E. Province/IPD
CCB Administrator

Approved by:

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Dennis M. Giblin/IPD
CCB Chairman

Distribution:
CCB Members
Other Attendees

IPD CCB MEETING JUNE 16, 1994 TO CONDUCT THE LANDSAT PROCESSING SYSTEM PROJECT APPROVAL REVIEW

Pertinent questions/answers and comments that transpired during the subject IPD CCB meeting are contained herein.

OVERVIEW - C. Wilkinson/Code 564

1. Question: Is there a Project Management Plan (PMP)? (D. Giblin)
Answer: There is a draft PMP that will be updated after this presentation.
(C. Wilkinson)

2. Comment: The "Secondary Ground Station - NASA" on the Ground System Overview diagram should be shaded to indicate that this support is optional.
(C. Wilkinson)

3. Question: Will there be data quality checking for the secondary ground station:
(W. Stallings)
Answer: It should be provided. (C. Wilkinson)

4. Question: What is the purpose of the secondary ground station? (W. Stallings)
Answer: The primary downlink ground station is limited to five passes per day. If more than 250 scenes per day are needed by the users, the secondary ground station would be required. (D. DeVito)

5. Question: Why is "R/T Data Quality Monitoring" indicated as optional? (W. Stallings)
Answer: The estimated cost is over the available budget. (C. Wilkinson)

Comment: We should, as a minimum, monitor the quality of the data capture process.
(W. Stallings)

Comment: The argument against the monitoring was that previous Landsat missions did not have R/T data quality monitoring. (D. DeVito)

6. Comment: Code 530 should look at the quality of the data capture process. (C. Wilkinson)

7. Comment: We need to make sure that the users know what quality checking is being provided. Maybe we should plan for

the required quality checking and then back off later. (W. Stallings)

Comment: We have presented the real-time monitoring requirements to all levels of management so decisions on funding can be made. (D. DeVito)

Comment: Landsat users are now receiving 12 - 16 scenes per day so they could get much more from the 250 potential scenes per day. (D. DeVito)

LGS ALLOCATED REQUIREMENTS - E. Valencia/Code 564

8. Question: What is the difference between Landsat 7 data and Wideband data?
Answer: They are the same. (E. Valencia)

9. Question: Is the data interleaved? (W. Stallings)
Answer: Not at the LGS level.

10. Comment: There was much discussion on data recording requirements.

Comment: There is no requirement for a hot backup data recording capability.
(D. DeVito)

11. Comment: There are several detailed requirements within the presentation "LGS shall generate 4 physical channels of serial data at 75 Mbps per channel".
(D. DeVito)

12. Question: Is the LGS a "store and forward operation"? (W. Stallings)
Answer: That is the current concept. It does not rule out faster processing.
(C. Wilkinson)

Comment: The allocation of requirements can be adjusted. (D. DeVito)

Comment: We need to look at alternatives considering both hardware and operations. We need to ensure optimum allocation of requirements. (W. Stallings)

13. Question: Why did we include the requirement that "LGS equipment shall introduce no more than one bit error in 10**9 bits processed"? (W. Stallings)
Answer: This is driven by a project end-to-end requirement. (D. DeVito)

Comment: This may be changed. How this impacts the technology requirements needs to be determined. (W. Stallings)

LPS ALLOCATED REQUIREMENTS - E. Valencia/Code 564

14. Question: What is the difference between "The LPS shall be capable of receiving the equivalent of 250 scenes per day" and "The LPS shall have the capability to handle 12 Mbps daily average aggregate data rate"? (W. Stallings)
Answer: The 12 Mbps daily average aggregate data rate defines the most data that can be received from the primary downlink ground station. (E. Valencia)

Comment: They are basically equivalent. (C. Wilkinson)

Comment: The 12 Mbps requirement should be traceable to the 250 scenes per day as a derived requirement. (W. Stallings)

Comment: We will make this change. (C. Wilkinson)

15. Question: What defines a scene? (J. Jackson)
Answer: Scenes are defined by the World-Wide Reference System (WRS). (D. DeVito)

16. Comment: The users will be responsible for any requirements to mosaic scenes.
(D. DeVito)

17. Question: How long does the LPS hold the data? (J. Jackson)
Answer: This is a TBD requirement. (C. Wilkinson)

Question: Shouldn't the data be time-tagged? (J. Jackson)
Answer: The data will only be on temporary storage. (C. Wilkinson)

Comment: The storage and transfer requirements will be specified in an ICD to be developed. (D. DeVito)

Comment: We will negotiate this area with the DAAC. (C. Wilkinson)

18. Comment: The storing and transfer of data is an end-to-end engineering issue that needs to solved now. (W. Stallings)

Comment: "LPS processing the data within 24 hours" is the high level Landsat requirement. (D. DeVito)

19. Question: How much reprocessing are you expecting? (G. Fleming)
Answer: We are estimating 10 percent. (E. Valencia)

Comment: Reprocessing is currently a functional requirement. Performance will be added later. (D. DeVito)

Comment: Reprocessing is a fundamental part of sizing the system. (D. Giblin)

20. Comment: Storage requirements should be added during a later review. (W. Stallings)

21. Comment: All organizations supporting Landsat 7 are being involved early to ensure that the best possible ground support system is being developed. (D. DeVito)

22. Comment: The cost drivers for all functions must be identified. (W. Stallings)

23. Comment: The "LPS shall be staffed to support integration and test TBD months prior to launch" is a statement of work more than a requirement. (D. DeVito)

24. Question: How will Automatic Cloud Cover Assessment (ACCA) data be expressed?
(J. Jackson)
Answer: This needs further analysis and definition within budget constraints.
(C. Wilkinson)

Comment: ACCA could be computationally intensive. (J. Jackson)

25. Question: Will the meta data be attached to the other data? (W. Stallings)
Answer: Yes, it will be within the same directory. (C. Wilkinson)

Comment: This is a throughput driver. (W. Stallings)

26. Question: Are you planning prototyping? (W. Stallings)
Answer: Yes. (J. Henegar)

LPS PERFORMANCE AND RMA REQUIREMENTS - E. Valencia/Code 564

27. Question: What is the basis of the RMA requirements? (W. Stallings)
Answer: The RMA requirements were based on iterative discussions with the Project regarding cost. (C. Wilkinson)

28. Comment: A maximum of 2 or 3 passes could be missed with the 4 hours MTTR.
(D. DeVito)

Comment: It is most important that the LGS be up. The LPS could process the data later. (W. Stallings)

LPS PRODUCTS - E. Valencia/Code 564

29. Question: What is the difference between a dataset and a scene? (J. Jackson)
Answer: A dataset could contain both an interval and a subinterval of data.
(E. Valencia)

30. Question: For Level 0R, what does “all manipulations are reversible” mean?
(E. Beard)
Answer: The manipulations do not prohibit one from reverting back to the original data. (E. Valencia)

31. Comment: The browse capability could be used for internal quality control if a high resolution capability were added. (J. Jackson)

LPS OPERATIONS CONCEPT - J. Henegar/Code 563

32. Question: Where are interfaces with the Landsat Science Team covered in the LPS Functional Diagram (page 13 in the handout)? (W. Stallings)
Answer: Alignment tables will be loaded prelaunch and then updated once. (D. DeVito)

Comment: The interfaces need to be shown on the LPS Functional Diagram.
(W. Stallings)

33. Comment: It is a requirement to be able to determine if the LPS is processing the data correctly. (W. Stallings)

34. Comment: The only LPS responsibility for quality assessment is to detect any communications problem. (J. Unekis)

35. Question: Where are scene locations from? (J. Jackson)
Answer: They are determined from the PCD data and mapped to the World-wide Reference System. (J. Henegar)

Comment: This algorithm still needs to be defined.

ORGANIZATION ROLES & RESPONSIBILITIES - C. Wilkinson/Code 564

36. Question: Is this a Level 1 project? (W. Stallings)
Answer: If this is not a Level 2 project, we are giving this review to the wrong group. (C. Wilkinson)

37. Question: Is there a project level system engineering team? (W. Stallings)
Answer: Yes. (D. DeVito)

Comment: Our SEM should be a member of that team. Across organizational cost tradeoffs are the responsibility of that team. (W. Stallings)

38. Question: Is there a separate I&T Manager? (W. Stallings)
Answer: Currently there is none planned. The SEM will manage this area.
(C. Wilkinson)

Comment: This will be okay initially, but later on this position should be staffed.
(W. Stallings)

39. Question: Do your risk assessments cover security? (G. Fleming)
Answer: No. (C. Wilkinson)

40. Comment: There was much discussion on the Operations Concept. It was concluded that this will be closely coordinated with USGS.

41. Comment: There needs to be a tight coupling with the ultimate operators of the system. (W. Stallings)

42. Question: Is there a separate IV & V Plan? (W. Stallings)
Answer: This is being worked at the project level. There is not a separate contract for this effort, because of budget constraints. This is still an open issue.
(D. DeVito)

43. Question: Do you envision any custom hardware? (W. Stallings)
Answer: No. (C. Wilkinson)

44. Comment: A QA plan is required for this effort. (W. Stallings)

SOFTWARE DEVELOPMENT METHODOLOGY - J. Henegar/Code 563

45. Question: Will the preliminary design review involve the CCB? (E. Beard)
Answer: No. (C. Wilkinson)

Comment: There are risks involved. (W. Stallings)

DEVELOPMENT HARDWARE CONFIGURATION - C. Wilkinson/Code 564

46. Question: Do you have potential site locations in Building 23? (W. Stallings)
Answer: Yes, on the first three floors. (C. Wilkinson)

47. Question: Why are there 3 builds and 2 releases planned? (W. Stallings)
Answer: This is in anticipation of external requirements. (C. Wilkinson)

48. Question: When does end-to-end testing start? (W. Stallings)
Answer: They are scheduled for May 1997. (D. DeVito)

49. Comment: It is not acceptable to ship the system to EDC until it is tested at GSFC and accepted by EDC. (W. Stallings)

Comment: We will negotiate/coordinate with EDC for their support during the testing at GSFC. (C. Wilkinson)

50. Comment: The schedule looks like implementation starts too late. (W. Stallings)

51. Question: When will space be needed in Building 23? (J. Jackson)
Answer: I will provide this information to you. (C. Wilkinson)

Disposition: The Landsat Processing System Project was approved by the IPD CCB.